

## STATEMENT OF BASIS

PERMITTEE: City of Cut Bank

PERMIT NUMBER: MT0030562

RECEIVING WATER: Cut Bank Creek

FACILITY: City of Cut Bank Water Treatment Plant

RESPONSIBLE OFFICIAL: Emmet D. Embody, Mayor

CONTACT: John Damberger, Water Plant Foreman  
221 West Main Street  
Cut Bank, Montana 59427

LOCATION: 82 Pendergrass Road  
Cut Bank, Montana 59427  
SE ¼ Section 2, Township 35 N, Range 6 W  
Blackfeet Reservation, Glacier County, Montana  
48.64222 N and 112.34470 W

PERMIT TYPE: Indian Country, Minor Permit, Permit Renewal

### **I. Permit Status**

The current National Pollutant Discharge Elimination System (NPDES) Permit for the Cut Bank Water Treatment Plant (WTP) became effective on October 10, 2010, and expired on September 30, 2015. In August 2015, the City of Cut Bank (Cut Bank) submitted an application for renewal, and it was deemed complete September 16, 2015.

### **II. Facility Information**

The WTP is located near the border of the Blackfeet Reservation just across Cut Bank Creek from Cut Bank. Raw water is obtained from Cut Bank Creek via nine perforated intake pipes that are buried in coarse rock at a depth of three to six feet in the creek bed. Water may be stored in an off-stream reservoir until treatment but is typically pumped directly from the creek to the WTP. The treatment process includes flocculation using alum, settling (in a settling basin), filtration, and disinfection using chlorine. Chlorination is done at two points in the treatment process; prechlorination occurs between the settling and filtration steps, and postchlorination follows filtration. Approximately 1.5 million gallons per day (mgd) of treated water are produced. The filters are backwashed with treated water as necessary to remove the flocculation residue, and the backwash water drains to a two-cell, infiltration-percolation (IP) system adjacent to the WTP. Both sludge from the settling basin and backwash effluent are initially drained to one cell, and then the discharge is switched to the second cell when the first cell reaches capacity. The cells of the IP system have the ability to discharge through a single outfall (001) when they are at capacity, but because of infiltration and evaporation, the WTP has not discharged since March 2007 and only plans to discharge in case of an emergency. The sludge is cleaned from the ponds and disposed

of as the ponds fill up. Typically the ponds are cleaned every three to five years, and the sludge is hauled off-site to a dry cell at Cut Bank's wastewater lagoon.

#### A. Compliance History

The WTP has not discharged since March 2007 but was in compliance with its effluent limits (Table 1) when it discharged during the 2005 NPDES Permit cycle. The most recent inspection conducted by the EPA was on October 11, 2012. Other than the Permit lacking a signed cover page, all records met Permit requirements.

<b>Table 1: Current Effluent Limitations for 001</b>			
<b>Effluent Characteristic</b>	<b>30-Day Average <u>a/</u></b>	<b>7-Day Average <u>a/</u></b>	<b>Daily Maximum <u>a/</u></b>
Total Suspended Solids, mg/L	30	45	--
Total Dissolved Aluminum, mg/L	--	--	0.75
Total Residual Chlorine, mg/L	--	--	.019
The pH of the discharge shall not be less than 6.5 or greater than 9.0 at any time.			

a/ See Definitions, Part 1.1. of the Permit, for definition of terms.

### III. Technology Based Effluent Limits (TBELs)

TBELs are national wastewater discharge standards developed by the EPA for certain industries. They are industry-specific and intended to represent the greatest pollutant reductions that are economically achievable for an industry.

There are no TBELs for water treatment plants. However, 40 CFR § 133.102 includes secondary treatment standards attainable through secondary or equivalent treatment, and the settling pond technology used by the WTP is comparable to a waste stabilization pond, which qualifies as equivalent to secondary treatment. Although waste stabilization ponds qualify for adjustments to the secondary treatment standards if attainment is not achievable, the character of the WTP effluent during previous discharges demonstrates it can meet the secondary treatment standards. The secondary treatment standards for total suspended solids (TSS) and pH in Table 2 were previously used as TBELs for the WTP based on Best Professional Judgment (BPJ), which is authorized in 40 CFR § 125.3(c)(2), and they will be continued in this Permit. Because the discharge from the WTP only contains flocculated material from the source water and filter backwash effluent, the biological oxygen demand (BOD) limits and percent removal requirements for TSS and BOD that are part of the NSS are not applicable and will not be applied as TBELs.

<b>Table 2: Technology Based Effluent Limitations</b>			
<b>Effluent Characteristic</b>	<b>Units</b>	<b>30-Day Average</b>	<b>7-Day Average</b>
TSS	mg/L	30	45
The pH of the effluent shall not be less than 6.0 nor greater than 9.0 in any single sample or analysis.			

#### **IV. Water Quality Based Effluent Limitations (WQBELs)**

WQBELs, which are based on water quality standards, must be established for any parameters where TBELs are not sufficient to ensure water quality standards will be attained in the receiving water (40 CFR § 122.44(d)). The parameters that must be limited are those that are or may be discharged at a level that will cause, or have the reasonable potential to cause or contribute to an exceedance of water quality standards. The purpose of this section is to provide a basis and rationale for establishing WQBELs based on the applicable water quality standards of the receiving water.

##### **A. Receiving Waters**

The WTP discharges to a portion of Cut Bank Creek that is the boundary between the Blackfeet Reservation and the State of Montana. Based on data compiled by the United States Geological Survey in the *Statistical Report of Streamflow in Montana and Adjacent Areas, Water Years 1900 through 2009*, the 7Q10 flow (i.e., seven-day, ten-year low flow) for Station 06099000 on Cut Bank Creek at the City of Cut Bank is 5.58 cubic feet per second (cfs). This station is located just downstream of the WTP outfall. Therefore, the critical flow in Cut Bank Creek upstream of the discharge is 5.39 cfs (i.e., 5.58 cfs minus the previous discharge rate from the WTP of 0.19 cfs (120,000 gallons per day)).

##### **B. Water Quality Considerations**

The Blackfeet Tribe, which has treatment in the same manner as a state for water quality standards, adopted water quality standards in 2010 but they have not been submitted to the EPA for approval. As part of the Blackfeet water quality standards, Cut Bank Creek has a suite of designated uses that apply: drinking water class 2, aquatic life salmonid (full life stages), aquatic life non-salmonid (full life stages), recreational class 1 (full body contact), wildlife growth and propagation, agriculture, navigation and industrial, and cultural. Montana has classified the 21-mile segment of Cut Bank Creek from the Blackfeet Reservation boundary to the mouth at the Marias River as B-2 (ARM 17.30.610(1)(d)(i)(B)). B-2 waters are to be maintained suitable for drinking, culinary and food processing purposes, after conventional treatment; bathing, swimming and recreation; growth and marginal propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; and agricultural and industrial water supply (ARM 17.30.624(1)). The segment of Cut Bank Creek downstream of the Reservation is listed on the 2016 303(d) List as impaired for low flow alterations, temperature, and nitrate-nitrite.

The Blackfeet mixing zone policy contained in the water quality standards does not have detailed implementation procedures but has three requirements for applicants: the smallest mixing area possible is being requested; all aquatic life standards will be met at the edge of the mixing zone; and human health standards for drinking water must be met within one mile of any intake for domestic use. ARM 17.30.507(1)(b) of Montana's regulations on mixing zones specify that "acute standards for aquatic life for any parameter may not be exceeded in any portion of a mixing zone, unless the department specifically finds that allowing minimal initial dilution will not threaten or impair existing beneficial uses." This means that the acute criteria must be met at the end of the discharge pipe unless an exception is granted. ARM 17.30.516(3)(b) of the regulations on mixing zone specifies that for facilities that discharge a mean annual flow less than 1 MGD to a stream segment with a dilution less than 100:1, discharge limitations will be based on dilution with 25 percent of the 7Q10 low flow. The dilution ratio is defined as the 7Q10 upstream of discharge, divided by the mean annual flow of the discharge, which equals 28:1 (i.e.,  $5.39/0.19$ ). For chronic criteria, the allowable mixing zone is  $0.25(5.39) = 1.34$  cfs.

### C. Reasonable Potential Analysis

Besides TSS and pH, the other pollutants of concern based on treatment processes at the WTP are aluminum and total residual chlorine (TRC). Both the state and the Blackfeet have a narrative water quality standard for sediment, and no WQBEL is necessary because the TSS TBEL is sufficient to protect water quality standards. Typically, reasonable potential for causes of impairment downstream of a facility is also evaluated. However, because the WTP has not discharged since 2007, and does not plan to discharge except in case of emergency, there is no reasonable potential for it to cause or contribute to exceedances of the nitrate or temperature standards downstream.

Because Cut Bank Creek is the boundary between Montana and the Blackfeet Reservation, in developing effluent limitations, the EPA considered the EPA CWA Section 304(a) criteria (i.e., the national recommended water quality criteria for the protection of aquatic life and human health in surface water), tribally adopted water quality standards, and state water quality standards (Table 3). The state and tribally adopted water quality standards are identical for total residual chlorine (TRC) and pH but differ for aluminum in that Montana's standard applies to the dissolved fraction while the EPA CWA Section 304(a) criterion and the Blackfeet standard apply to the total recoverable fraction. The EPA believes it is reasonable and appropriate as a technical matter to include the EPA CWA Section 304(a) criterion/Blackfeet standard to develop the aluminum effluent limitation for this Permit, which will also comply with the State of Montana's water quality standard for aluminum.

<b>Table 3: Aquatic Life Acute and Chronic Water Quality Standards</b>			
<b>Pollutant</b>	<b>Montana Acute/Chronic</b>	<b>Blackfeet Acute/Chronic</b>	<b>EPA 304(a) Acute/Chronic</b>
Aluminum <sup>1</sup> , µg/L	750/87	750/87	750/87
Total Residual Chlorine, µg/L	19/11	19/11	19/11
pH	6.5 – 9.0	6.5 – 9.0	6.5 – 9.0

<sup>1</sup>Montana's standard is for dissolved aluminum and the Blackfeet's standard and 304(a) criterion is for total recoverable aluminum.

**Total Recoverable Aluminum** – Previously the effluent limit for aluminum was dissolved aluminum instead of total recoverable, which is the form proposed for this Permit, so all effluent data is for dissolved aluminum. Discharge monitoring report (DMR) data from 2005 through March 2007 showed a maximum dissolved aluminum concentration of 320 µg/L and a minimum concentration of 150 µg/L. Although this was below the maximum daily limit of 750 µg/L, it exceeds the chronic criterion, and if the sample had been analyzed for total recoverable aluminum the result may have been higher. Data in the receiving water are very limited; there is no Blackfeet aluminum data upstream of the WTP on Cut Bank Creek. The Montana Department of Environmental Quality (DEQ) collected samples that were analyzed for total recoverable aluminum just downstream of the WTP, 2.5 miles downstream, and at the mouth in August 2002. The concentrations starting at the WTP and proceeding to the mouth were 150 µg/L, 100 µg/L, and 240 µg/L, all of which exceed the chronic criterion and show no assimilative capacity for total recoverable aluminum. DEQ also collected one sample at the mouth in August 2005, which was below the detection limit, but it was analyzed for dissolved aluminum. Therefore, there is no assimilative capacity, and because the DMR data show discharges that exceeded the chronic criteria, this demonstrates reasonable potential for total recoverable aluminum. Since there is no assimilative capacity, WQBELs

will be based on meeting the water quality standards at the point of discharge: the proposed average monthly limit (AML) is 87 µg/L and the proposed maximum daily limit (MDL) is 750 µg/L.

**TRC** – A mixing zone was previously allowed for TRC, but because of the toxicity of chlorine and the applicable standards being greater than the detection level, a mixing zone will no longer be allowed. Therefore, the WQBELs for TRC will be based on meeting the water quality standard at the point of discharge.

**pH** – The Montana and Blackfeet pH criterion for Cut Bank Creek is 6.5 to 9.0 standard units, which is more stringent than the TBEL of 6.0 to 9.0. This standard was previously used as the effluent limit and will be continued in this Permit.

#### A. Final Effluent Limitations

The proposed effluent limitations in Table 4 will be applied to the discharge at Outfall 001 during periods of discharge, effective upon issuance of the Permit and remain in effect for the duration of the Permit cycle. Limits are based on the most stringent of either the TBELs or WQBELs presented in Sections III and IV, respectively. Section 402(o) of the Clean Water Act and 40 CFR 122.44(l) require, with some exceptions, that effluent limits or conditions in reissued Permits be at least as stringent as those in the existing Permit. All final effluent limits in Table 4 are at least, or more stringent, than the limits in the existing Permit (Table 1).

<b>Table 4: Final Effluent Limitations for 001</b>			
Effluent Characteristic	Effluent Limitation		
	30-Day Average <u>a/</u>	7-Day Average <u>a/</u>	Daily Maximum <u>a/</u>
Total Suspended Solids, mg/L	30	45	--
Total Recoverable Aluminum, µg/L	87	--	750
Total Residual Chlorine, µg/L <u>b/</u>	11	--	19
The pH of the discharge shall not be less than 6.5 or greater than 9.0 at any time.			

a/ See Definitions, Part 1.1 of the Permit, for definition of terms.

b/ The analysis for total residual chlorine shall be done by Standard Methods 4500-Cl G unless the use of another method is approved in writing by the Permit issuing authority. For the purposes of the Permit, the minimum limit of analytical reliability in the analysis for total residual chlorine is considered to be 0.05 mg/L, and analytical values less than 0.05 mg/L shall be considered to be in compliance with this Permit.

#### **VI. Self-Monitoring Requirements**

The self-monitoring requirements in Table 5 apply to Outfall 001 when the WTP is discharging. The WTP measures representative flow at a trapezoidal flume in the monitoring manhole in the combined discharge line. Additionally, effluent samples are taken in the monitoring manhole after the two settling ponds. Because of the lengthy retention time in the ponds and the intent to only discharge in case of emergency, the sample type will be continued as grab in this Permit.

<b>Table 5: 001 – Self Monitoring Requirements</b>		
<b>Effluent Characteristic</b>	<b>Frequency <u>a/</u></b>	<b>Sample Type <u>b/</u></b>
Total Flow, mgd <u>b/</u>	Weekly	Instantaneous
Total Suspended Solids, mg/L	Weekly	Grab
pH, units <u>c/</u>	Weekly	Grab
Total Recoverable Aluminum, mg/L	Weekly	Grab
Total Residual Chlorine, mg/L <u>c/</u>	Weekly	Grab

a/ See Definitions, Part 1.1, for definition of terms.

b/ The average flow rate (mgd) during the reporting period and the maximum flow rate observed (mgd) shall be reported.

c/ pH and total residual chlorine samples must be analyzed within 15 minutes of collection.

#### A. Discharge Monitoring Reports

DMR forms for the remainder of the year will be mailed out shortly. However, if the facility does not discharge, no DMR needs to be submitted. The Permittee may elect to use *NetDMR* to electronically submit DMRs instead of mailing paper DMRs. However, starting December 21, 2016, Permittees must electronically report DMRs using *NetDMR*. If you have any DMR questions or concerns regarding *NetDMR*, please contact EPA's Policy, Information Management and Environmental Justice Program, DMR Coordinator at (303) 312-6056. See Section 2.4 of the Permit, Reporting of Monitoring Results, for additional information.

### VII. Endangered Species Act Requirements

Section 7(a) of the Endangered Species Act requires federal agencies to ensure that any actions authorized, funded or carried out by an agency are not likely to jeopardize the continued existence of any federally-listed endangered or threatened species or adversely modify or destroy critical habitat of such species. According to U.S. Fish and Wildlife Service, Information for Planning and Conservation (IpaC) website (<https://ecos.fws.gov/ipac/>) on June 6, 2016, there is one threatened species and no critical habitat within the vicinity of the WTP (Table 6).

<b>Table 6. Threatened, Endangered, and Candidate Species on the Blackfeet Reservation</b>			
<b>Common Name</b>	<b>Scientific Name</b>	<b>Status</b>	<b>Habitat</b>
Grizzly Bear	<i>Ursus arctos horribilis</i>	Threatened	Resident, transient; Alpine/subalpine coniferous forest

The EPA finds this Permit is not likely to adversely affect any of the species listed by the U.S. Fish and Wildlife Service under the Endangered Species Act. The facility has not discharged to Cut Bank Creek since 2007 and only plans to discharge in case of emergency. The renewal of this Permit does not allow any increase in effluent limitations over the previous Permit.

### **VIII. National Historic Preservation Act (NHPA) Requirements**

Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470(f) requires that federal agencies consider the effects of federal undertakings on history properties. The EPA has evaluated its planned reissuance of the NPDES Permit for the Cut Bank WTP to assess this action's potential effects on any listed/eligible historic properties or cultural resources. The EPA does not anticipate any impacts on listed/eligible historic properties or cultural resources because there are none in the vicinity of the WTP and this Permit is a renewal and will not be associated with any new ground disturbance or changes to the volume or point of discharge.

### **IX. Miscellaneous**

The renewal Permit will be issued for a period of approximately five years. The Permit effective and expiration dates will be determined at the time of permit issuance.

Permit drafted by Lisa Kusnierz, MOO, Wastewater Unit, 8P-W-WW, June 9, 2016.

Permit reviewed by Al Garcia, Amy Clark, Qian Zhang, Robert Shankland, Craig Jorgenson, Wastewater Unit, 8P-W-WW, June 28, 2016.